

RECEIVED
CENTRAL FAX CENTER

JUL 13 2009

S/N 10/581732

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) An extracorporeal blood circulating apparatus comprising:
 - a closed-type venous reservoir having a blood storage chamber for storing blood and a volume adjusting chamber for storing an adjusting liquid for volume adjustment that are disposed adjacently by partitioning a closed space formed by a housing with a flexible septum member;
 - an adjusting liquid tank for storing the adjusting liquid that is connected to the volume adjusting chamber; and
 - a blood pump that is connected to the blood storage chamber,
 - the housing being provided with an inflow port for allowing blood to inflow and an outflow port for allowing blood to outflow that respectively communicate with the blood storage chamber, and an adjusting port for injecting and ejecting the adjusting liquid that communicates with the volume adjusting chamber,
 - the blood pump being connected to the blood storage chamber via the outflow port,
 - the adjusting liquid tank being connected to the volume adjusting chamber via the adjusting port,
 - wherein
 - ~~the closed space of the closed-type venous reservoir is partitioned by a flexible septum member so as to form the blood storage chamber and the volume adjusting chamber, and~~
 - the apparatus is provided with a supporting unit that holds the adjusting liquid tank so that a height of the adjusting liquid tank is variable,
 - the adjusting liquid tank and the adjusting port are connected by a conduit member having a configuration that can adjust a flowing amount, and
 - when the height of the adjusting liquid tank is changed, in accordance with a change in a relative height of the adjusting liquid tank with respect to the closed type

S/N 10/581732

venous reservoir, an amount of the adjusting liquid stored in the volume adjusting chamber is varied based on a difference in height, thereby the septum member being deformed in the housing so as to vary the volume of the blood storage chamber.

2. (original) The extracorporeal blood circulating apparatus according to claim 1, wherein the conduit member is made of a flexible tube.

3. (original) The extracorporeal blood circulating apparatus according to claim 1, wherein the conduit member comprises a channel adjusting portion for changing a channel cross-sectional area in a channel.

4. (previously presented) The extracorporeal blood circulating apparatus according to claim 1, comprising a measuring portion for measuring an amount of the adjusting liquid that is stored in the adjusting liquid tank.

5. (previously presented) The extracorporeal blood circulating apparatus according to claim 1, wherein the closed-type venous reservoir comprises:

 a first blockade avoiding channel forming a space bulging outward that is provided on an inner wall surface of the housing at a part facing the blood storage chamber; and

 the inflow port and the outflow port that respectively are disposed so as to communicate with the first blockade avoiding channel.

6. (previously presented) The extracorporeal blood circulating apparatus according to claim 1, comprising a fine-adjusting port for injecting and ejecting the adjusting liquid between the adjusting port and the adjusting liquid tank.

7. (previously presented) The extracorporeal blood circulating apparatus according to claim 1, comprising:

 an auxiliary venous reservoir for collecting blood that is removed from parts other than a blood removal part of a living body; and

S/N 10/581732

a blood ejecting device for allowing the blood that is stored in the auxiliary venous reservoir to inflow into the inflow port of the closed-type venous reservoir.

8. (canceled)

9. (original) A closed-type venous reservoir comprising:
a housing forming a closed space;
a blood storage chamber for storing blood and a volume adjusting chamber for storing an adjusting liquid for volume adjustment that are disposed adjacently by partitioning the closed space;
an inflow port for allowing blood to inflow and an outflow port for allowing blood to outflow that are provided at the housing so as to communicate with the blood storage chamber; and
an adjusting port for injecting and ejecting the adjusting liquid that is provided at the housing so as to communicate with the volume adjusting chamber,
wherein
the closed space is partitioned by a flexible septum member into the blood storage chamber and the volume adjusting chamber,
a first blockade avoiding channel forming a space bulging outward is provided on an inner wall surface of the housing at a part facing the blood storage chamber; and
the inflow port and the outflow port are disposed so as to communicate with the first blockade avoiding channel.

10. (original) The closed-type venous reservoir according to claim 9, wherein
a second blockade avoiding channel forming a space bulging outward is provided on the inner wall surface of the housing at a part facing the volume adjusting chamber,
and
the adjusting port is disposed so as to communicate with the second blockade avoiding channel.

S/N 10/581732

11. (previously presented) The closed-type venous reservoir according to claim 9, wherein an air vent port is provided so as to communicate with the first blockade avoiding channel.
12. (previously presented) The closed-type venous reservoir according to claim 9, wherein a gas-liquid separator membrane that encloses the inflow port and the air vent port so as to separate the inflow port and the air vent port from the blood storage chamber is disposed at a part where the inflow port is connected to the blood storage chamber.
13. (previously presented) The closed-type venous reservoir according to claim 9, wherein a pressure measuring port is provided so as to communicate with the second blockade avoiding channel.
14. (previously presented) The closed-type venous reservoir according to claim 9, wherein the first blockade avoiding channel is formed into a groove shape along the housing.
15. (original) An extracorporeal blood circulating method comprising:
 - using the extracorporeal blood circulating apparatus according to claim 1;
 - connecting the inflow port of the closed-type venous reservoir to a blood removal part of an living body directly or via another member;
 - connecting an outlet of the blood pump to an autotransfusing part of the living body directly or via another member;
 - filling a system comprising the adjusting liquid tank, the conduit and the volume adjusting chamber with the adjusting liquid;
 - adjusting a filling amount of the adjusting liquid in the volume adjusting chamber by adjusting a height of the adjusting liquid tank with respect to the closed-type venous reservoir so that the blood storage chamber has a blood storage capacity appropriate for priming before starting the extracorporeal blood circulation;
 - closing a channel of the conduit member after completing the adjustment so as to start the priming by operating the blood pump; and

S/N 10/581732

releasing the channel of the conduit member and holding the adjusting liquid tank in a position, with respect to the blood removal part of the living body, that is lower than a height of the adjusting liquid tank during the priming so as to start blood removal, after completing the priming.

16. (original) The extracorporeal blood circulating method according to claim 15, further comprising:

using a flexible tube as the conduit member; and

closing the channel of the conduit member by narrowing a bore of the tube by a clamp.

17. (original) The extracorporeal blood circulating method according to claim 15, further comprising changing the height of the adjusting liquid tank to be in a higher position with respect to the blood removal part of the living body so as to increase a blood storage capacity of a heart of the living body, during the blood removal.

18. (original) The extracorporeal blood circulating method according to claim 15, further comprising decreasing a cross-sectional area of a channel that connects the inflow port of the closed-type venous reservoir and the blood removal part of the living body, so as to increase a capacity of a heart of the living body, during the blood removal.

19. (original) The extracorporeal blood circulating method according to claim 15, further comprising:

decreasing the height of the adjusting liquid tank with respect to the living body to be lower than the height of the adjusting liquid tank during the blood removal so as to decrease a volume of the blood storage chamber to be sufficient for maintaining a cross-sectional area of a blood channel;

operating the blood pump in a state of decreasing a discharging amount; and thereafter

terminating the extracorporeal blood circulation.

S/N 10/581732

20. (original) The extracorporeal blood circulating method according to claim 15, further comprising:

providing a fine-adjusting port for injecting and ejecting the adjusting liquid between the adjusting port and the adjusting liquid tank; and

injecting and ejecting the adjusting liquid by using a syringe via the fine-adjusting port so as to fine-adjust a filling amount of the adjusting liquid in the volume adjusting chamber.